Anesthesia Preceptorship and Standardized Methods

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DNAP Evidence-Based Practice Vb: Dissemination

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Abstract

Clinical learning is critical for developing students and graduate advanced practice nurses. Clinical education affects self-awareness, critical thinking, and hands-on skills. Graduate students develop their practice by being precepted by advanced practice preceptors. Clinical learning, however, is negatively impacted by preceptors who may lack appropriate, evidenced-based training. Thus, preceptors and their knowledge base play a significant role in this development and could potentially influence future patient outcomes. This scholarly project aimed to address knowledge gaps of advanced practice preceptors by creating an online continuing education module regarding evidence-based precepting approaches for certified registered nurse anesthetists and attempted to submit to the American Association of Nurse Anesthesiology (AANA) for approval which was denied. While developing this module, the current process for creating Continuing Education (CE) modules at AdventHealth University (AHU) was optimized through the application of a Find Organize Clarify Understand Select (FOCUS) Plan-Do-Check-Act (PDCA) cycle to create a protocol that outlines requirements, optimize facilitators and minimize barriers. The FOCUS PDCA cycle is a quality improvement model that will provide a structure for problem-solving. The FOCUS portion of this cycle was addressed in this project and future improvements could be made by future cohorts through implementing the PDCA portion. This project aimed to create a CE module but was denied for lack of evidence to support its creation. A protocol was developed for improving the process of CE module creation with the AdventHealth University's continuing education division, Echelon.

Table of Contents

Anesthesia Preceptorship and Standardized Methods

Clinical learning is an essential aspect of nurse anesthesia education that impacts the quality of patient care received by student registered nurse anesthetists (SRNAs). Preceptorship is an educational relationship in which experienced professionals support, teach, and mentor the learner (Kuensting et al., 2020). The teaching effectiveness of clinical instructors is critical to the quality of education students gain from the clinical area (Smith et al., 2011). Interacting with anesthesia preceptors during observation and participation in anesthetic cases, allows students to grow into a professional role, acquire professional skills, and develop attitudes that are essential for entering the healthcare field (Elisha & Rutledge, 2011; Gatewood & De Gagne, 2019; Smith et al., 2011).

While the potential for professionalizing novices is substantial, many advanced practice preceptors lack standardization of roles, expectations, and formalized education, which can potentially limit effective clinical learning (Easton et al., 2017; Elisha & Rutledge, 2011; Forsberg et al., 2015; Gatewood & De Gagne, 2019 & Gatewood et al., 2020). Insecurity in the preceptor role can lead to unclear expectations and student anxiety. Increasing anxiety levels influences the student's ability to learn and perform safely and effectively (Scott-Herring & Singh, 2017a; Smith et al., 2011). Physicians and advance practice registered nurses (ARPN) are precepting graduate level nursing students in the U.S. without a standardized methodology and benchmark (Gatewood & Gagne, 2019; Scott-Herring & Singh 2017a). There is a significant gap between evidenced-based precepting methods described in the literature and what occurs in practice (Mann-Salinas et al., 2013).

Significance & Background of Clinical Problem

In nursing education, preceptors play a significant role in the development of students and new graduates, ultimately influencing future patient outcomes (Knisley et al., 2015; Scott-herring & Singh, 2017b; Mitzova-Vladinov, 2017). More than 50% of surveyed advanced practice nurse preceptors reported a lack of standardization of roles, expectations, and education requirements, resulting in ineffective clinical learning (Easton et al., 2017; Elisha & Rutledge, 2011; Forsberg et al., 2015; Gatewood & De Gange, 2019; Gatewood et al., 2020). Clinical precepting is further hindered due to a lack of formal training by healthcare institutions and nursing programs regarding effective clinical educational strategies (Beck Dallaghan et al., 2017; Gatewood et al., 2020; Germano et al., 2014). Regarding certified registered nurse anesthetists (CRNAs) specifically, minimal publications addressed their preceptor education. However, those limited findings suggested that SRNAs are frequently subjected to varied teaching methods and inconsistent feedback from CRNAs (Scott-Herring & Singh, 2017a; Scott-Herring & Singh, 2017b). This may result from a lack of student exposure during anesthesia programs to teaching as a discipline, as none of the 51 objectives for a practice doctorate directly address this (Council on Accreditation & American Association of Nurse Anesthesiology, 2015). The problem is perpetuated after graduation as the Council on Accreditation (COA) does not require students to undergo education on evidenced based teach methods before precepting students (Council on Accreditation & American Association of Nurse Anesthesiology, 2021).

A lack of formal education in preceptorship is problematic as clinical experience during graduate-level healthcare education directly impacts student development (Elisha & Rutledge, 2011; Gatewood & De Gagne, 2019). The approach to clinical education also affects self-awareness, critical thinking, and hands-on skills (Scott-Herring & Singh, 2017a; Smith et al., 2011). Therefore, the preceptor plays a significant role in developing students and new graduates

(Knisley et al., 2015; Mitzova-Vladinov, 2017; Scott-Herring & Singh, 2017b; Tracy, 2015). Graduate nursing students and first-year practitioners that did not receive standardized, evidence-based training had issues developing adequate problem-solving skills resulting in feelings of inadequate preparation for solo practice and ultimately, difficulty coping with stress (Scott-Herring & Singh, 2017a; Scott-Herring & Singh, 2017b). At moderate levels, SRNAs reported that stress resulted in a lack of confidence in performance and dissatisfaction with role assignments (Scott-Herring & Singh, 2017a; Scott-Herring & Singh, 2017b). Stress in nurse anesthesia education is known to be high, with many SRNAs experiencing significant adverse effects such as depression and suicidal ideation at a rate of 47% and 21%, respectively (Chipas et al., 2012; Conner, 2015). While clinically related stress only partially contributes to SRNA stress, better educational practices could be beneficial.

Clinical education, when engaged in by untrained preceptors, may result in inefficient learning related to student stress and anxiety, leading to delays in the development of clinical reasoning (Wilkinson et al., 2015). Thus, properly prepared preceptors are essential for graduate students to build confidence in their practice and facilitate the role transition of the SRNA to a CRNA (Tracy, 2015; Casey et al., 2004, Mann-Salinas et al., 2013). The current lack of consistent education provided for preceptors regarding effective clinical and educational strategies has resulted in a CRNA preceptor knowledge gap that must be addressed to facilitate an improvement in student learning and well-being (Scott-Herring & Singh, 2017a; Smith et al., 2011). To address this gap, an attempt was made to create a continuing education (CE) module in collaboration with the AdventHealth University's (AHU) education department, Echelon. While SRNAs have successfully developed CE modules, the rate for successful publication is approximately 50% at AHU. Therefore, a FOCUS-PDCA cycle was implemented during the

development of this CE module along with a SRNA guidance protocol that strengthened facilitators and addressed barriers to successful dissemination.

PICOT Search Format Questions

Two questions in PICO format have assisted in a systematic review of the literature. The first addresses the clinical problem: In licensed healthcare providers (P), how do evidence-based precepting modules (I) influence teaching methods in a clinical setting (O)? The second question addresses the clinical innovation: At AdventHealth University (P), does the implementation of FOCUS PCDA during the development of a continuing education module regarding evidence-based precepting approaches (I) result in the development of an SRNA guidance protocol that strengthens facilitators and addresses barriers related to SRNA developed continuing education modules and the submission of a CE module to AANA for publication (O)?

Search Strategy/ Results

The search strategy included the following databases and reference lists: CINAHL, PubMed, the National Center for Biotechnology Information (NCBI), Google Scholar, ProQuest, and the U.S. National Library of Medicine. Four hundred and five articles were initially retrieved. Forty-one met the inclusion criteria: titles, abstracts, and documents were reviewed for relevance to proposed PICOT questions and preceptorship. Key Search Terms and MESH combinations included: *Preceptor* AND *Anesthetist* AND *Education, Nurse Anesthetist* AND *Student* AND *Education, Nurse Practitioner* AND *Preceptorship* AND *Nursing* AND *Student, Clinical competence* AND *Education* AND *Preceptorship* AND *Nurse* AND *Standards.* MESH terms included: *Preceptorship, Education, Teaching Methods, Evidence-based practice, Inservice training, Nursing, Professional competence, Self-Efficacy, Models and Educational, Clinical Competence, Faculty and Medical, Nurse Clinicians, Program Development,*

Preceptorship and standards, Mentors and Education, Adult. The Search limits were: English language, research articles, and within the last 20 years.

GRADE Criteria

The GRADE Criteria was used in rating the level of evidence to discover the current state of evidenced-based precepting. The initial GRADE level for the literature was a 3. The evidence's preliminary rating was moderate because most research was based on qualitative methodologies and observational studies. Limitations included imprecision from small sample sizes, indirectness, inconsistencies concerning self-reporting study participants, and evaluations that were not consistently scored. As a result of these limitations, the literature was downgraded to a low of 2. Methodological flaws included recruitment bias, convenience sampling, focus groups, and the lack of inclusion and exclusion criteria. Methodological strengths included using a standardized evaluation tool for clinical assessment and universal preceptor education courses. This provides sufficient criteria to upgrade from 1 back to a 3. The evidence is moderate, and we highly recommend this literature be considered for clinical practice due to issues with student wellness being of significant concern. There is also minimal risk involved in implementing this scholarly project with the possibility of improving current educational practice and student well-being, thus the strong recommendation.

Literature Review

Graduate students develop their clinical practice from teaching methods of advanced practice preceptors, who may be physicians or CRNAs. There are, however, barriers to implementing effective evidence-based clinical teaching, including minimal implementation time, the split attention of the preceptor, and a limited number of providers with formal education in best precepting practices. There is an urgent need to address these barriers as

improved teaching effectiveness and consistent preceptor practices result in improved preceptor and student well-being, appropriate degrees of student independence, and improved self-esteem and competence. Although several evidence-based precepting models exist, they are not necessarily easy to implement in the context of the operating room. Despite this, the one-minute preceptor model lends itself to rapid and easy use and was the focus of this scholarly project.

Current Barriers to Evidence-Based Clinical Teaching

Three primary barriers can hinder effective clinical teaching. These barriers include minimal time dedicated to student education, a split attention requirement between patient care and student learning, and limited exposure to evidence-based precepting practices. The advanced practice preceptor has significant clinical demands, and over 50% state limited time for teaching as a primary barrier (Webb et al., 2015). Payments for anesthesia services are billed in 15-minute increments (Centers for Medicare & Medicaid Services [CMS], 2017). Delays of any kind are discouraged due to charges accrued by the patient. There is also minimal time between cases as surgeon satisfaction, and optimal operational performance of the operating room is the highest priority (Gupta et al., 2011). Thus, minimal time is available to dedicate to student education. This time limitation results in both education and the provision of anesthesia taking place simultaneously. As patient care must always be the primary focus, educational opportunities are often missed. Teaching time in the clinical setting can be optimized by incorporating evidence-based preceptor models (Aagard & Irby 2004; Gatewood et al. 2020). However, preceptors have varying amounts of exposure to education, resulting in a knowledge gap for preceptors, which hinders student clinical learning creating a need to improve teaching effectiveness (Wilkinson et al., 2015).

Improved Teaching Effectiveness

Implementing an evidenced-based precepting model can improve provider teaching techniques resulting in better student learning. Standardized tools have been shown to increase the teaching effectiveness of inexperienced preceptors favorably. Inexperienced preceptors also reported changing clinical teaching behaviors to better facilitate learning. However, a negligible effect was noted for the healthcare professional with ten years or more of precepting experience (Bazzell & Dains, 2017; Gatewood & De Gagne, 2019; Gatewood et al., 2020; & Wilkinson et al., 2015). Experienced preceptors also preferred more personalized approaches to giving feedback and establishing expectations (Bazzell & Dains, 2017; Gatewood and De Gagne, 2019; Gatewood et al., 2020; Wilkinson et al., 2015). Additionally, when advanced practice preceptors did engage in a preceptor education module, most participants reported an increase in knowledge and indicated that they would apply learned concepts in practice (Bazzell & Dains, 2017; Gatewood & De Gagne, 2019; Gatewood et al., 2020; Wilkinson et al., 2015). From a student perspective, however, a need exists for consistent preceptor practices across providers, indicating that implementing an evidence-based preceptor model within institutions would benefit regardless of preceptor experience level (Bartlett et al., 2020, Wilburn et al., 2018).

Improved Preceptor and Student Well-being

Implementing positive communication behaviors, which creates a constructive learning environment, improves student learning and decreases anxiety and stress levels. Positive communication behaviors also promote the development of appropriate degrees of student independence (Smith et al., 2011). Elements of communication found to be most effective in improving students' clinical experience and learning includes a start-of-day skill level determination, discussion of preceptor expectations, provision of feedback, and careful consideration throughout the day of students' thoughts and needs (Easton et al., Ferrara, 2012;

Kertis, 2007). It is important to note that effective feedback includes reinforcing positive clinical behaviors with specific examples and encouraging repeated behaviors to build self-esteem and clinical competence (Kertis, 2007, Gatewood and De Gagne, 2019; Gatewood et al., 2020). When necessary, correcting mistakes should include critiques from both student and preceptor, allowing for reflection and solutions to future practice (Kertis, 2007, Gatewood and De Gagne, 2019, Gatewood et al., 2020). Feedback from the preceptor and preceptee is necessary to assess teaching effectiveness and encourage appropriate clinical behaviors (Chen et al., Knisley et al., Wilkinson et al.) Additionally, effective delivery of evaluations and professional communication was the most noted clinical behavior desired by students (Smith et al., 2011; Elisha and Rutledge, 2011; Scott Herring and Singh, 2017ab); Gatewood et al., 2020).

Significant emphasis has been placed, both in publications and by accrediting bodies, on the importance of practical evaluation of student clinical behaviors as it is known to lead to improved learning and clinical outcomes (Gatewood et al., 2020; Gatewood and De Gagne, 2019; Mitzova-Vladinov, 2017; Smith et al., 2011) Clinical evaluation methods must encompass all domains that are critical to the identification of areas that need to be reinforced and altered. Evidence-based domains specific to anesthesia include patient safety, critical thinking, professional attitudes, and collaboration with others (Elisha et al., 2020; Mitzova-Vladinov, 2017). When implemented appropriately, evidence-based evaluations identify crucial areas of deficiency, improve clinical reasoning skills, and assist students in integrating academic knowledge (Gatewood et al., 2020; Mitzova-Vladinov, 2017; Aagard et al., 2004; Elisha et al., 2020).

Evidence-Based Precepting Models

While validated and reliable evaluation tools such as the Common Clinical Assessment Tool (CCAT) are available, and their implementation is encouraged by the COA/frequently implemented (Council on Accreditation, 2021). Preceptors, nonetheless, still require a structured clinical teaching method that incorporates optimal communication techniques while emphasizing clinical reasoning and active learning while developing a clinical plan. There was no identifiable nurse anesthesia-specific precepting models. However, two evidence-based models, the Dedicated Education Unit (DEU) and the Married State Preceptor Model (MSPM), were found to be effective in nursing (Figueroa et al., 2016; Rusch et al., 2018).

The DEU stresses the importance of an optimal learning environment and has been shown to increase the overall satisfaction of preceptors and students (Rusch et al., 2018). A collaborative approach that utilizes staff nurses as clinical educators for an extended time is employed to enhance student learning. Students are scheduled for six weeks to work with a dedicated staff nurse trained as a clinical instructor to improve understanding and attain expected clinical outcomes. Incorporating the DEU model in nurse anesthesia education would be challenging as successful implementation depends on consistency and continuity. While these goals are achievable in providing bedside nursing care, the operating room lacks continuity in cases, preceptor types (anesthesiologist vs. nurse anesthetists), preceptor schedules, and the assignment of specialty cases. Additionally, implementing the DEU model requires macro-level changes in collaborating institutions making the successful implementation of this model unlikely. Given these issues, preceptors for SRNAs need a more flexible, easily applied model.

The Married State Preceptor Model specifically addresses graduate nurses. This model stresses the importance of assigning a preceptor and graduate nurse to provide patient care as a single unit to facilitate learning. This approach significantly reduces student anxiety through

rapport-building methods with clinical educators (Figueroa et al., 2016; Shinners et al., 2018). The MSPM, which incorporates the novice-to-expert continuum developed by Dr. Patricia Benner, allows for three phases of clinical learning which encourages a gradual decrease in preceptor support (Figueroa, 2016; Benner, 1982). Currently, the level of independence encouraged for SRNAs is based on the student's progression in clinical skills. The COA also recommends initially assigning students 1:1 with a preceptor, gradually increasing to but not beyond a 2:1 ratio as clinical skils improve. This concept of skill progression is very similar to the MSPM. For nurse anesthesia specifically, the COA recommends the CCAT, which incorporates Benner's theory of practitioner development in the clinical evaluation of students. Thus, within the practice of anesthesia, both critical components of the MSPM and Patricia Benner's theory from novice to expert, are already incorporated within the COA recommendation and within our approach to clinical supervision (Elisha et al., 2020; Council on Accreditation, 2021; Benner, 1982).

The one-minute preceptor (OMP) is an evidence-based model designed to improve teaching efficiency, student competence, and confidence within the clinical setting (Kertis, 2007; Gatwood and De Gagne, 2019; Gatewood et al., 2020; Furney et al., 2001). It involves five micro-skills that are used to guide teaching interactions. The first step is to get a commitment from the student regarding a patient-specific care plan. The second step then prompts the student to validate the theorized plan with supporting rationales to assess student knowledge and decision-making skills. The third step involves the preceptor filling in any missed connections by teaching general principles to enrich the clinical plan. Finally, the last two steps include reinforcing correct clinical behaviors through positive feedback while critiquing mistakes by providing recommendations for improvement (Furney et al., 2001; Gatewood and De Gagne,

2019; Gatewood et al., 2020; Kertis, 2007). With five efficient yet effective steps, OMP is easily implemented within the time constraints of the OR, making this model the ideal teaching method for nurse anesthesia. While easily implemented, preceptors will still require education regarding the five steps of the OMP model. Consequently, an SRNA-developed AANA CE module was developed to address the gaps in knowledge experienced by providers.

Project Aims

The primary aim of this scholarly project was to address knowledge gaps by creating an online continuing education module regarding evidence-based precepting approaches for certified registered nurse anesthetics in collaboration with Echelon, AdventHealth University's professional education division. The project's secondary aim was to construct an SRNA guidance protocol that clarifies and improves the C.E. module development process at AdventHealth University. The objectives are as follows:

Objective 1: Develop an evidence-based one-hour online module, including pre/posttest, developed and delivered through the AHU Echelon platform, concerning evidence-based precepting approaches for CRNAS by April 2023.

Objective 2: Apply for C.E. credit approval through the ANNA by April 2023.

Objective 3: Complete a guidance protocol that clarifies the process, optimizes AHU facilitators, and reduces barriers for SRNA development of AANA-accredited CE modules in collaboration with Echelon by April 2023.

Framework and Planning

This scholarly project did not involve human subjects or data collection. Therefore, a traditional methodology section created for human subject research was inappropriate. However, to qualify as a scholarly work, this project contains clear goals, demonstrates

adequate preparation and planning, and incorporates procedures appropriate to the project type (Simpson et al., 2012). Using the FOCUS PDCA cycle, a process improvement model, provided a structured approach to problem-solving for this scholarly project. The FOCUS PDCA is an extension of the Deming cycle that has seen significant success in the healthcare industry, business, and education (Graphic Products Staff, n.d; Quality Improvement for Institutions, 2013; Creative Safety Supply, 2017). Hence it was ideal for guiding the CE module creation for CRNAs.

FOCUS

The FOCUS portion of the PDCA cycle begins with "Find," which involves analyzing a preexisting process for areas of potential improvement (Graphic Products Staff, n.d; Quality improvement for institutions, 2013; Creative Safety Supply, 2017). This step was completed in the Doctorate of Nurse Anesthesia Practice (DNAP) class 790, “a CRNA degree program in which DNAP describes the degree and the number is the class level.” This class is when the gap between "best practice" in clinical precepting and the need for an evidence-based CE module was identified. The need for a CE module development protocol at AHU for SRNAs was also addressed. "Organize" involves assembling a team that understands the process and provides necessary input for process improvement (Graphic Products Staff, n.d; Quality improvement for institutions, 2013; Creative Safety Supply, 2017). This step was completed in DNAP 791 with the development of a scholarly project committee. Additionally, the steps of Clarify, Understand, and Select, which involve collecting data and information about the process in question, identifying variation within that process, and selecting an improvement plan, were all completed in DNAP 791. These steps were completed during key player interviews, onboarding of key players, Echelon site approval, an in-depth review of feasibility studies conducted by the

DNAP 2021 cohort, and the selection of the FOCUS PDCA model to guide this scholarly project (Graphic Products Staff, n.d; Quality improvement for institutions, 2013; Creative Safety Supply, 2017).

PDCA

The PDCA portion of the FOCUS PDCA cycle begins with a plan. At this stage, a viable solution to the identified problem must be developed (Graphic Products Staff, n.d; Quality improvement for institutions, 2013; Creative Safety Supply, 2017). Specifically, for this scholarly project, the planning stage resulted in the creation of both the CE module and the guidance protocol for SRNAs who will collaborate with Echelon in the future. This stage was completed by the spring of 2023 through the creation of the CE protocol without the completion of the CE module. The remaining portion of the PDCA cycle, which includes doing, checking, and acting, requires the implementation of the protocol and the collection of data to determine if the desired results were achieved. Given the time limitations of the DNAP program, a future student cohort should be selected to finalize this cycle. (Henshall, 2020; Norman & Moen, 2010; Minnesota Department of Health, n.d.).

Facilitators and Barriers

Facilitators and barriers were determined during the construction of this project. Facilitators consisted of key player interviews, previous feasibility studies in the AHU library archives, Echelon personnel, and the scholarly project committee. Barriers consisted of the allotted time in the DNAP program for project completion, the time required for changes to fulfill accrediting body expectations for a successful submission, and the lack of a consistent timeline for expected due dates.

Results/Findings

The objective of this project was to create a viable CE module that would be potentially submitted for approval by the AANA. The created transcript was reviewed by the AHU echelon committee and was deemed non-viable and would not be submitted for accreditation. The committee determined that there wasn't enough evidence to support the problems with the current state of precepting. Furthermore, the transcript constructed lacks educational components that would not have achieved desired outcomes.

While this project did not result in a successful publication of a CE module, a protocol was created to help future students construct a CE. This protocol gives future students the exact steps that need to be completed to create their module while limiting time waste. The shortcomings pertaining to this project will be both a learning experience and an example that will aid in the future success of the upcoming cohorts.

Discussion, Applicability to Practice, and Contribution to Professional Growth

Effective clinical precepting is essential for improving patient outcomes, role transition, and the well-being of future providers. Evidence-based precepting models can aid in this aspect. (Elisha & Rutledge, 2011; Gatewood & De Gagne, 2019; Smith et al., 2011). However, there are significant knowledge gaps for preceptors regarding best precepting practices (Scott Herring and Singh, 2017b; Smith et al., 201). Evidence-based models are being implemented within CRNA clinicals, yet practices are inconsistent and sometimes incomplete. The primary gap identified was in the day-to-day communication exchanges that were unlikely to be guided by evidence-based models. Thus, implementing the one-minute preceptor model, in addition to the MSPM, will help address this gap by improving teaching and student competence efficiency.

Ultimately, CRNAs are responsible for upholding the AANA Code of Ethics and abiding by established standards of practice. The AANA clarifies that CRNAs are responsible for

positive role modeling and creating a safe and trusting learning environment while educating others. Given the identified gap and its impact on students, CRNAs must engage in process improvement. The constructed CE module was supposed to contribute to awareness of the problem delineated in the literature and provide evidence-based recommendations to improve precepting practices and ultimately enhance learning (Council on Accreditation, 2021; American Association of Nurse Anesthesiology, 2021).

Creating a CE module is a detailed process that entails many steps that must be optimal to achieve success. The committee defined two deficient areas in our project, leading to not receiving approval to submit for accreditation. There were noticeable gaps in the literature regarding the lack of information to provide a strong argument for the current state of precepting. While there could be a problem that can be concluded based on first-hand experiences, there needs to be a significant amount of literature to support the notion. There might not be enough information for the given topic to provide a strong argument. Additionally, the focus of the CE concerning CRNAs was transitioned to apply to multiple areas of nursing, making the information less viable for the new approach. The project was considered lacking in educational content to reach the desired outcomes of the CE module. This could be related to the amount of supporting information on the topic. Although the outcome was not achieved due to uncontrollable circumstances, many takeaways still exist for improving this topic in the future. The failure of this project will be the starting point for future cohorts to continue the research into standardized precepting until the literature supports the creation of a CE module.

Conclusion/ Limitations

Since the CE module was not published, an additional FOCUS PDCA cycle should be applied to this project for improvement. Therefore, quality improvement should focus on what

went wrong on this project to facilitate the successful creation of future CE modules. Due to the time limit provided to complete this CE, there is a possibility that further revision would have made this project successful. The original project's theme was geared towards CRNAs but later transitioned to other nursing specialties. This project was primarily focused on incorporating the one-minute preceptor model for adoption by CRNAs. To avoid bias, different models were included. This could have affected the strength of the data due to the generalization of the project. There were gaps in the literature regarding the current issue with precepting and the effectiveness of evidenced-based precepting leading to a lack of supporting evidence to make a definite claim. Although the CE module was unsuccessful, this project welcomes the idea of consistently precepting graduate students to improve learning and impact future patient outcomes. Individuals interested in clinical education can potentially find more supporting literature in the future to support a standardized method for optimal precepting. This project leaves future recommendations for incoming students to follow the protocol when creating their CE so that time constraints are not an issue. This project is a portion of the Deming Cycle that can be improved again to elicit the desired results of finding an evidence-based precepting model that works for CRNAs.

Dissemination Plan

The evidence-based precepting and quality improvement CE module was created for continuing education credit but could not be submitted to the AANA. Since approval was not attained, dissemination cannot occur nationally. Additionally, this project will be presented locally to the AHU faculty, collaborating Echelon faculty, and key players through an oral presentation accompanied by PowerPoint slides and a poster via an online media platform.

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Appendix A

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Purpose	Variables	Setting/Subjects	Measurement and Instruments	Results	Evidence Quality
Study One: To describe the development and implementation of an innovative clinical evaluation tool for SRNAs. **Study Two:** To describe the experiences and attitude of student registered nurse anesthetics related to clinical instruction **Design** **Study One:** Not Stated. Appears to be cross-sectional **Study Two:** Cross-sectional survey method randomly selected sample	**Study One:** Primary Outcome: Implementation of QSEN-Based Clinical evaluation Tool. Secondary Outcome: Calculate the 29 competencies concerning the NAP course objectives. **Study Two:** Primary Outcome: To send a certain number of questionnaires to randomly selected AANA members. Secondary Outcome: To test 50% of current SRNAs in the U.S. about their experiences in clinical education.	**Study One:** Setting: University of Miami School of health and health sciences. Subjects: A total of 396 subjects were evaluated. Including SRNAs and preceptor. **Study Two:** Setting: Zoomerang online survey. Subjects: 2673 SNRAs were invited to participate and 696 obliged.	**Study One:** Evaluation tool that incorporates the 6 Quality and safety competency domains of quality and safe education for nurses. A Likert scale in addition to yes, no question where used in the evaluation tool. **Study Two:** Questionnaire that used a secure socket later SSL encryption. A 54-item questionnaire was made. Analyzed using descriptive statistics and statistical software SPSS version 17.0. Verbal abuse, Sexual harassment, Physical abuse, Racial discrimination, and clinical educator as a role model were measured.	**Study One:** The total clinical performance score was significantly correlated with the global rating, rs = .57, P < .001, but not with the examination grade, rs = .10, P = .122. Global rating was correlated with cumulative GPA, rs = .19, P = .003, but not with examination grade, rs = −.01, P = .855 **Study Two:** The overall satisfaction with learning on a scale of 1-5 proved that only 21.6% rated their experience a 5 with a Mean (S.D.) of 3.9 (.8) in relation to their learning objectives being met. 18.1% rated their experience a 5 with a Mean (S.D.) of 3.8(.9) in relation to personal expectations for clinicals being met. **Implications** **Study One:** The proposed innovative clinical evaluation tool aims for early identification SRNAs who have suboptimal clinical performance, therefore ensuring early educational interventions and graduation of safe and competent clinical providers **Study Two:** New information for CRNAs CEs related to the clinical education of SRNAs in the U.S. To introduce learning strategies and behaviors into C.E.s than can be effectively taught and are linked to positive student outcomes	**Study One:** **Methodological flaws:** Conclusion based on limited data. The study was based on a one-day evaluation of students. **Inconsistency:** None **Indirectness:** written evaluations were not filled out regularly and not consistent with scored performance. **Imprecision:** None **Publication bias:** None **Study Two:** **Methodological flaws**: Random selection turned out that CNRAs responding were 2/3 female, predominantly white, and younger than 38 years old. **Inconsistency:** None **Indirectness:** None **Imprecision:** None **Publication bias:** None

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Purpose	Variables	Setting/Subjects	Measurement and Instruments	Results	Evidence Quality
Study One: To develop an evidence-based CRNA preceptor online training tutorial. **Study Two:** Understanding SRNAs views on nurse anesthetist role transition. **Design** **Study One:** Self-Selection **Study Two:** Self Selection	**Study One:** Primary Outcome: CPiTT tool, baseline survey, presentation of CPiTT content at the mentoring event. Secondary Outcome: To identify gaps between best practice in clinical precepting and what occurs in the clinical setting. **Study Two:** Primary Outcome: 3 focus groups selected from 3 Anesthesia schools, 2-hour recordings of SRNA perception on role transition. Secondary Outcome: To determine the greatest influence on role transition from R.N. to CRNA.	**Study One:** Setting: The University of Pittsburgh, SRNAs from the school, and CRNAs from the University of Pittsburgh medical center. Subjects: 24 CRNAs and 20 SRNAs completed the CPiTT evaluation. 97 CRNAs and 36 SRNAs completed the Qualtrics preceptorship survey. **Study Two:** Nurse Anesthesia programs in the Chicago area. **S**ubjects:17 SRNA students, 12 from their second year, and 5 from the first-year class.	**Study One:** CPiTT presentation evaluation, Likert scale, Qualtrics survey **Study Two:** 2-hour long audio recordings of student answers that were turned into 5 key themes.	**Study One:** 94% of SRNAs believe formal preceptor training would be helpful, and 62% of CRNAs agreed. **Study Two:** 5 themes emerged from positive role transitions interviews, preceptors, mentoring, reflection, training variety, and experiencing independent operating CRNAs **Implications** **Study One:** Both groups agreed formal training would be helpful, specifically in debriefing and communication. **Study Two:** Implementation of role transition programs, specifically with mentorship and having supportive preceptors have the most substantial influence on role transitioning.	**Study One:** **Methodological flaws:** Convenience sampling, recruitment bias **Inconsistency:** Covered slang terms on the survey without defining them. "pimping, sequential questioning" **Indirectness:** Full implementation of CPiTT will require additional longitudinal studies. **Imprecision:** Small sample size **Publication bias:** None **Study Two:** **Methodological flaws:** Focus group methodology isn't reliable for eliciting an individual's point of view but rather a group interview. Have 3 more focus groups in different regions outside the Midwest. **Inconsistency: None** **Indirectness: None** **Imprecision:** The pilot study is not large enough to ensure data saturation. **Publication bias: None**

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Purpose	Variables	Setting/Subjects	Measurement and Instruments	Results	Evidence Quality
Study One: To determine if participation in a mentorship preceptorship program will increase the satisfaction, confidence, and comfort of both preceptors and newly hired orientees. **Study Two:** To determine where a 4-hour CRNA workshop will improve staff CRNA preceptor's satisfaction, confidence, and comfort to prepare better CRNAs to precept.	**Study One:** Primary outcome: Three 1-hour training sessions with the preceptors. Secondary outcome: Increased education on precepting new hires and an increase in average scores of satisfaction, comfort, and confidence precepting. **Study Two:** Primary outcome: The education given to CRNAs on how to precept. Secondary outcome: An increased understanding of new SRNAs learning style and familiarity with self-efficacy.	**Study One:** Setting: Anesthesia division of large-scale academic medical center in the mid-Atlantic region of the U.S. Subjects: Out of 110 CRNAs, a sample of 12 preceptors and 2 new hires. **Study Two:** Setting: Academic centers in the mid-Atlantic region. Subjects: 130 CRNAs chosen, 84 responded to the survey.	**Study One:** 5- point Likert scale, IBM SPSS statistics version 20 software to analyze the preceptor data. **Study Two:** CRNA Preceptor Needs Assessment Survey, 5-point Likert Scale.	**Study One:** Preworkshop total scores: mean 23.08 +- 3.58 S.D., and median IQR 23.5;20.5 to 26. Z Value -3.01, p-Value .002 Postworkshop total scores: mean 26.5 +- 2.91 S.D., and median IQR 27; 24.25 to 29. Z Value -3.01, p-Value .002 **Study Two:** Sum of Scores Pretest median (IQR) 24 (22-27). Z-value -4.64, P-value <.001. Sum of Scores Posttest median (IQR) 28 (25-30). Z-value -4.64, P-value <.001.	**Study One:** **Methodological flaws:** Recruitment bias, convenience sampling **Inconsistency:** None **Indirectness:** None **Imprecision:** Small sample size **Publication bias:** None **Study Two** **Methodological flaws:** Convenience sampling, recruitment bias **Inconsistency:** None **Indirectness:** None **Imprecision:** Survey could have been taken twice. **Publication bias:** None
Design: **Study One:** Randomized control trial **Study Two:** Self-Selected				**Implications** **Study One:** Participation in the workshop significantly increased CRNA preceptor satisfaction and comfort in the precepting experience. **Study Two:** The 2 areas with the highest priority needs were proficiency with adult learning and familiarity with self-efficacy, and CRNA preceptorship preparation and confidence was increased.	

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Purpose	Variables	Setting/Subjects	Measurement and Instruments	Results	Evidence Quality
Study One: To compare the One-minute preceptor (OMP) and traditional models of ambulatory teaching. **Study Two:** To implement online education to improve preceptors knowledge, skill, and comfort related to clinical teaching. **Design:** **Study One: Self selected** **Study Two:** Self-Selected	**Study One:** Primary outcome: To improve student satisfaction and learning. Secondary Outcome To identify the model that is most desirable for effective clinical teaching. **Study Two:** Primary outcome: To educate APRN preceptors on the use of the OMP and for preceptors to use the OMP while precepting APRN students. Secondary outcome: to educate APRN students on the use of SNAPPS and for students to use SNAPPS during clinical rotations.	**Study One:** Setting: University of California, San Francisco, school of medicine. Subjects 116 preceptors at seven universities in the year 2000. **Study Two:** Setting: an unnamed private urban university Subjects: 600 FNP students	**Study One:** Observation of a stop-action video containing two reenacted precepting encounters. Subjects were asked open ended questions on the effectiveness of teaching demonstrated in videos. To assess preceptors scores of each model, an analysis of variance (ANOVA) was used to analyze difference between tradition and OMP models. **Study Two:** pre-post design for preceptors and a post design for students to determine the effects of integrating the OMP and SNAPPS models into the clinical orientation of preceptors and family nurse practitioner (FNP) students. Change in preceptor knowledge regarding the OMP was assessed using a 10-question multiple-choice and true-false survey. This survey was administered at baseline and postintervention. A 4-point Likert scale for both the integration of the tenants of the OMP model and the comfort of clinical teaching was converted to mean values so parametric statistics could be used for analysis.	**Study One:** Identification of correct diagnosis using OMP model vs classic model (92% vs 76%, P=0.2) Clinical reasoning of students in videotapes were rated higher compared to traditional model (F=8.62; p=.01). **Study Two:** Preceptor's knowledge scores were significantly improved upon completing the C.E. activity. The mean score before the intervention was 57.14(SD=15.77) compared with 70.95 (SD=13.47), with higher postintervention scores representing an increase in knowledge (P=.003). Almost 90% of preceptors reported that participation in the program increased their knowledge, competence, and performance. Additionally, 73.7% reported that the program might ultimately improve their patient outcomes. **Implications** **Study One:** The OMP model is an effective method of managing patient care and more effective and efficient way of teaching in the ambulatory care setting. **Study Two:** The OMP model is an evidenced-based clinical teaching model that may improve clinical teaching and learning. Online preceptor education regarding the OMP model may be effective in increasing preceptor knowledge	**Study One:** **Methodological flaws:** Recruitment bias: only allowed participants from faculty-development program. **Inconsistency:** Variable experiences with OMP preceptor model. **Indirectness:** none **Imprecision:** none **Publication bias:** none **Study Two** **Methodological flaws:** Recruitment bias to a specific university **Inconsistency:** None **Indirectness:** None **Imprecision:** Small sample size 13.5% of those involved completed all aspects of the innovation. **Publication bias:** None

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Mann-Salinas, E., Hayes, E., Robbins, J., Sabido, J., Feider, L., Allen, D., & Yoder, L. (2014). A systematic review of the literature to support an evidence-based precepting program. *Burns*, *40*(3), 374–387. https://doi.org/10.1016/j.burns.2013.11.008

Purpose/Objectives	Search Strategy	Number and Type of Studies in the Review Including Sample Sizes	Results	Conclusions/ Implications	Evidence Quality
Study One: To integrate the literature on the OMP model by highlighting potential use for nurse practitioners while identifying directions for future research. **Study Two:** To determine if an effective evidence-based nursing precepting program meets the current precepting practice in specialty nursing, specifically on burn units.	**Study One:** **Databases**: CINAHL, MEDLINE, PubMed. **Search Terms:** Key terms of clinical teaching, nurse practitioner education, precepting, teaching model, time-efficient teaching. **Limits:** English; December 2017-January 2018; **Reviewers:** Two independent **Study Two:** **Databases:** MEDLINE, CINHAL, PROQUEST **Search Terms:** Preceptor, preceptee, preceptorship, precept, nurse, critical care, personality types, competency-based education, learning styles. **Limits:** Published literature 1995-2011, within PUBMED and Ovid search engines. English, humans, trials. **Reviewers:** Unspecified number of nurses reviewed evidence quality using a 7-level rating system.	**Study One:** 599 articles initially identified. Thirty-two articles were chosen; 12 experimental quantitative studies were included in the synthesis and 20 in descriptive studies. **Study Two:** This review included 43 studies related to the topic, and 24 were considered research.	**Study One:** Preferred by students and preceptors OMP model demonstrated significant improvement in preceptors teaching skills. As perceived by students and teachers. Assessing students' clinical reasoning. Studies found that OMP assesses cognitive skills that support successful preceptorship. Feedback skills OMP improves feedback and suggestions for improvement **Study Two:** 8 articles related to competency, 8 related to personality characteristics 5 related to learning styles, 7 addressed preceptor development, and 14 related to precepting programs. 7 themes emerged.	**Study One:** Current evidence supports the value of the OMP as an effective model of clinical teaching that improves reasoning feedback and corrective support. **Study Two:** A significant clinical gap exists between the scientific evidence and actual precepting practice of experiences nursed at the burn center. Studies are underway to develop a program consistent with precepting programs that allow unit-specific changes to fit into unique clinical practice environments.	**Study One:** **Methodological flaws:** Some articles reviewed had a lack of inclusion and exclusion criteria. Some studies had poor reliability and missing data. **Inconsistency:** None **Indirectness:** None **Imprecision:** None **Publication bias:** Undetected **Study Two:** **Methodological flaws:** There was no actual research on burn units obtained. They found relevant articles outside of their limiting date. **Inconsistency:** None **Indirectness:** Literature is inconclusive on study purpose. **Imprecision:** None **Publication bias:** None

Appendix B

• **Task**	**Trimester**
• **Determine topic for DNAP Project**	**2nd Trimester - Fall**
• Create a clinical problem and innovation PICOT	2nd Trimester - Fall
• Retrieve Literature Review Articles	2nd Trimester - Fall
• Create a matrix table with retrieved articles	2nd Trimester - Fall
• Creation of a Synthesis Paper	2nd Trimester - Fall
• Completion of CITI Training Modules	2nd Trimester-Fall
• **Form DNAP Scholarly Project Committee/Refine Research**	**4th Trimester - Summer**
• Obtain PICOT questions approval from Chair	4th Trimester - Summer
• Refined and review Matrix table	4th Trimester - Summer
• Meeting with the CARES team to determine methodology for Scholarly project	4th Trimester - Summer
• Scholarly Project Paper Draft Editorial Service Review	4th Trimester - Summer
• Determine Key Players with the help/approval of Project Chair	4th Trimester - Summer
• Analysis and Comparison of Key Players	4th Trimester- Summer
• Creation of proposed methods PowerPoint/ presentation	4th Trimester - Summer

• Edit Scholarly Paper per Editorial Recommendation for Project Chair Review	4th Trimester - Summer
• Creation of Scholarly Project Committee and Approval from DNAP Department Chair	4th Trimester - Summer
• Obtain Study Site Approval from DNAP Department Chair	4th Trimester - Summer
• Submission of Curriculum Vitae and Biography to Echelon Director	4th Trimester - Summer
• Accessing Activity Value to Echelon Director (Topic must be approved by Echelon)	4th Semester -Summer
• Activity Planning Form to Echelon Director o To include topic description, needs assessment, references, glossary of terms, objectives, and outline	4th Semester-Summer
• **IRB/SRC determination and Initial Scholarly PowerPoint Presentation**	**5th Trimester-Fall**
• Scholarly Project Paper First Draft Submission for Scholarly Project Committee Review	5th Trimester-Fall
• Fidelity Outcome Measure	5th Trimester-Fall
• Determination of IRB Designation	5th Trimester-Fall
• Informed Consent or Notification of Voluntary Participation (Turn in CE exemption email if applicable)	5th Trimester-Fall
• First Draft of Scholarly Project Initial PowerPoint Presentation for Chair Approval	5th Trimester-Fall
• Instrumentation (Turn in CE exemption email if applicable)	5th Trimester-Fall
• Submit Final Draft Scholarly Project Initial PowerPoint Presentation	5th Trimester-Fall
• Presentation to DNAP faculty and AHU staff	5th Trimester-Fall

• SRC/ IRB Submission: Partially Completed DNAP Department Chair Letter of Support (Turn in CE exemption email if applicable)	5th Trimester-Fall
• SRC Submission: Confirmation (Turn in CE exemption email if applicable)	5th Trimester-Fall
• Submit Department Chair Letter of Support	5th Trimester-Fall
• Scholarly Project Paper Final Draft	5th Trimester-Fall
• **Activity Planning Form to Echelon Director** o **To include topic description, needs assessment, references, glossary of terms, objectives, and outline**	**6th Semester-Spring**
• Creation of A Microsoft Teams Account	6th Trimester- Spring
• Submit Final Draft to Literature Review to Echelon Director	6th Trimester- Spring
• Submit Final Drafts of COI, CV, and Consent to Accredit to Echelon Director	6th Trimester-Spring
• Submit PDIS document to Echelon Director	6th Trimester-Spring
• Submit first draft of Objectives for CE modules	6th Trimester-Spring
• Submit Objectives with Module Drafts to Echelon Director	6th Trimester-Spring
• Submit Educational Planning Table (Part 1) to Echelon Director o To include objectives/outline	6th Trimester-Spring
• Start the first draft of CE Transcript to Echelon Director (6,000-word requirement)	6th Trimester-Spring

• **Education Planning Table Part 2** o to include Self-Checks and Post-Test	**7th Trimester-Summer**
• Final Draft of CE Transcript to Echelon Director	7th Trimester-Summer
• Insert Media (Images) into Final Draft of CE Transcript to Echelon Director	7th Trimester-Summer
• Format a Media Folder with all Original Images to TEAMS account	7th Trimester-Summer
• Create Quiz Questions for each Module and submit draft to Echelon Director	7th Trimester-Summer
• Create a Glossary for the CE Transcript to Echelon Director	7th Trimester-Summer
• **Develop CE application for approval and accreditation with Echelon Director**	**8th Trimester- Fall**
• Submit for Accreditation with Echelon	8th Trimester-Fall
• Write results/findings, conclusion/limitations, and application to CRNA practice sections	8th Trimester- Fall

• If CE is accredited submit the following to Election
  o Author Release Form
  o Media Script
  o Peer Reviewers
	8th Trimester- Fall

• **SRNA QA to Echelon Direction**	**9th Trimester- Spring**
• Course Release	9th Trimester-Spring